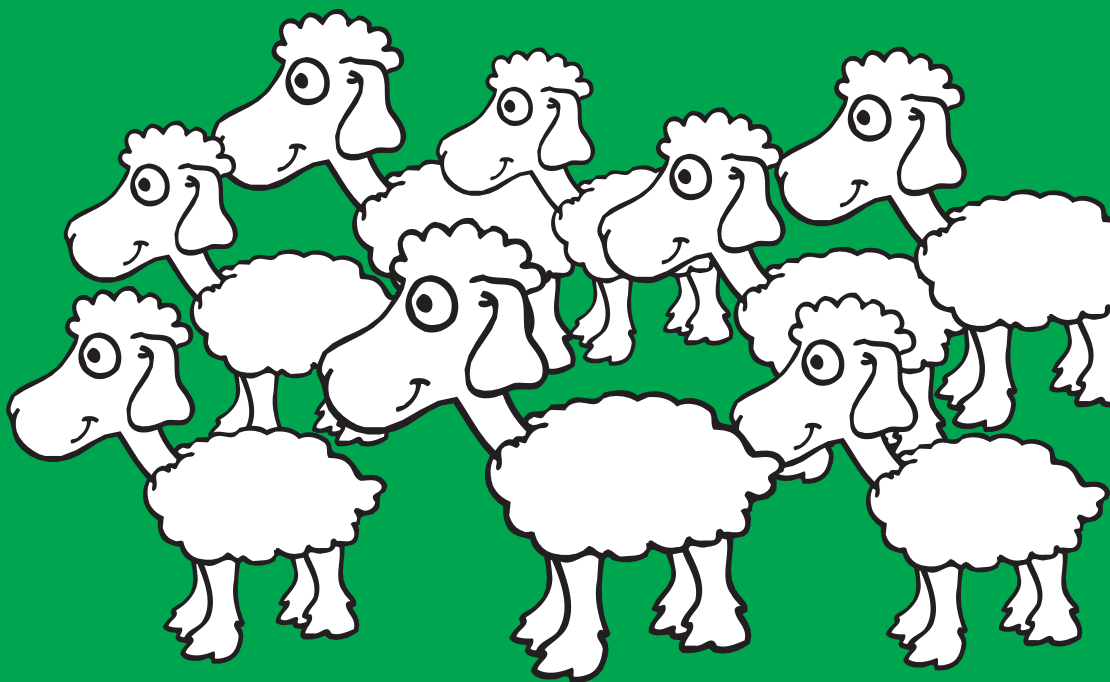


WHY FOLLOW THE PACK?

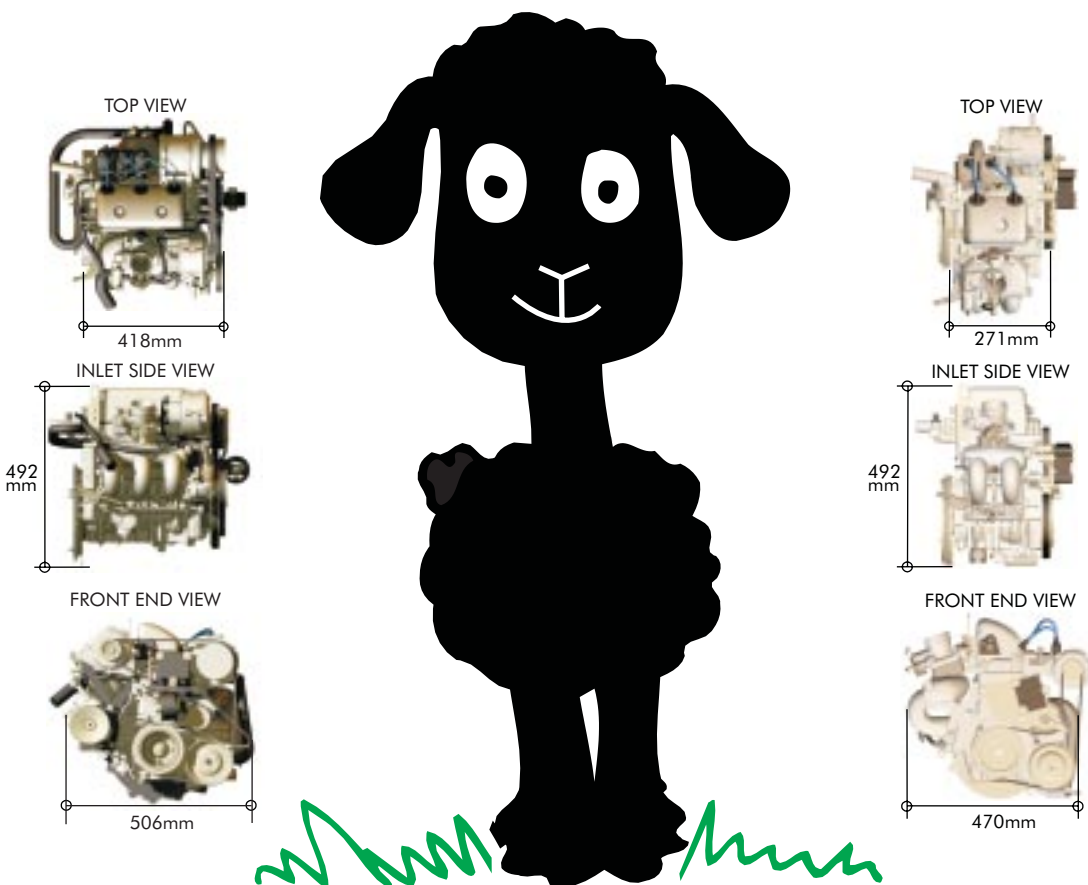
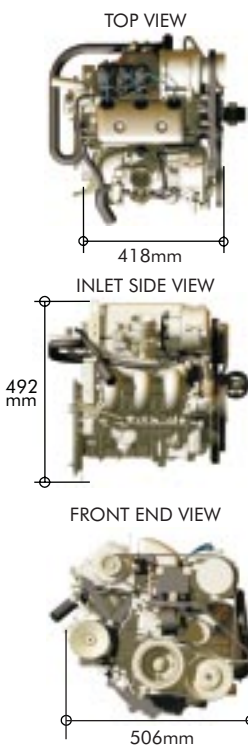
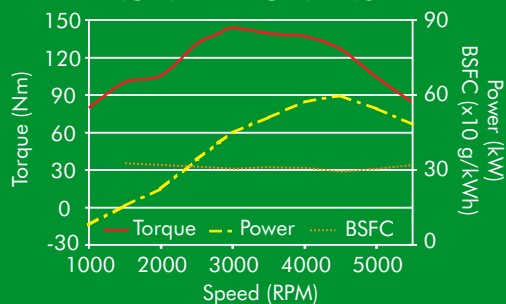




3-CYLINDER ENGINE

- Direct Injected, Stratified Charge, Naturally Aspirated, Two-Stroke
- Displacement: 1.2-Litre (1197cc)
- Bore x Stroke: 84 mm x 72 mm
- Peak Power: 60 kW (85 hp) @ 4500 RPM
- Peak Torque: 140 Nm (105 ft.lb) @ 4000 RPM
- Specific Power: 50 kW/Litre (71 hp/Litre)
- Emissions Compliance: EC15.04R (no catalyst or EGR)
- Compression Ratio: 10.5:1 Geometric
- Weight: ~ 85 kg (187 lb.) no balance shaft or EGR

GENESIS-III 3-CYLINDER ENGINE PERFORMANCE



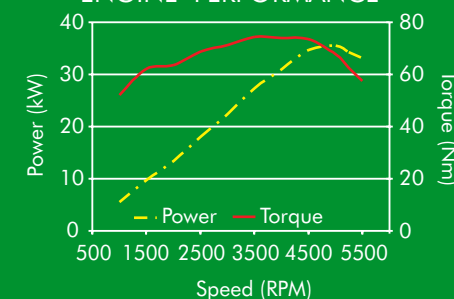
Please contact Orbital for more detailed technical information and how OCP 2-Stroke engines may be incorporated into your future products.



2-CYLINDER ENGINE

- Direct Injected, Stratified Charge, Naturally Aspirated, Two-Stroke
- Displacement: 0.8-Litre (798cc)
- Bore x Stroke: 84 mm x 72 mm
- Bore Spacing: 100 mm
- Peak Power: 36 kW (49 hp) @ 5000 RPM
- Peak Torque: 75 Nm (56 ft.lb.) @ 3500 RPM
- Specific Power: 45 kW/Litre (61 hp/Litre)
- Emissions Compliance: EC15.04R (no catalyst or EGR)
- Compression Ratio: 10.5:1 Geometric
- Weight: ~ 62 kg (137 lb.)

GENESIS-III 2-CYLINDER ENGINE PERFORMANCE



Proven Automotive Engines

The ability of OCP technology to reduce fuel consumption, control exhaust emissions and improve overall engine performance of internal combustion engines is now well accepted.

However, the application of this technology on a lower cost and less complex base engine for the automotive market has yet to be exploited.

The Genesis Fleet Trial

Orbital has designed a new engine family specifically for automotive applications and demonstrated its capability with the launch of the Genesis 100-vehicle fleet trial in Australia in 1996 in a Ford Festiva/Aspire platform.

Distributed Australia-wide to private buyers, government fleets, motoring organisations, and a commercial car rental organisation in the Northern Territory, the vehicles were exposed to a diverse range of driving styles and environmental conditions.

After more than three years and over 5.6 million kilometres of real world in-field driving, the OCP engine has demonstrated overwhelming success and acceptance.

Proven Performance

While the OCP engine was 8% smaller than the selected production engine, it generated approximately 19% more power and 25% more torque.

Proven Fuel Consumption

Fuel consumption was superior to the standard unit and even up to 13% better than a more comparable performance alternative in the same platform. Highway consumption was 4.8L/100km and urban 6.0L/100km as measured on the AS2877 drive cycle. Average fuel consumption across the fleet was 7.2L/100km (32.6 mpg USA).

Proven Durability

A major focus of the trial was to verify the significant advances made in OCP engine

durability and this was achieved. Core engine reliability was excellent, even in situations of deliberate abuse or running under extreme operating conditions. Improvements have been incorporated in the latest engine designs.

Proven Exhaust Emissions

Australian emissions regulations were targeted and these were achieved. However, the OCP engines were also capable of meeting USA Tier 1 and European Stage II levels in a real world production environment. High mileage measurements confirmed this capability.

Proven Acceptance

Market response was very positive, with comments praising engine responsiveness, power/torque performance and the sporty note of the exhaust.

Summary

The Genesis fleet trial has shown that a 2-stroke automotive engine is both viable and market acceptable and if equipped with OCP, retains inherent advantages. Compared to a 4-stroke MPI engine of comparable performance, OCP 2-strokes offer:

- More compact packaging
- Lighter weight
- Fewer parts
- Improved fuel efficiency
- Higher power density
- Lower manufacturing cost

Commercial Production Soon

Texmaco, an established company in Indonesia, is currently gearing up to manufacture a family range of 1, 2 and 3-cylinder OCP 2-stroke engines. These engines are targeted for not only Texmaco products but are also available for other applications such as city cars, commercial vehicles and hybrid applications.

Expressions of interest are now sought from OEMs for the provision and application of OCP engines.



ORBITAL

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